ably with the best philosophical books of recent years. At its best the exposition of the subject is very clear and engaging, and gives evidence of much reading and sound study. If it errs at all, it is perhaps in occasional over-subtlety. An excellent running analysis is given in the table of contents.

Where all is so excellent and thorough, a short notice can do little more than indicate the point of view. The first part of the volume deals with the direct explanation of the mind, *i.e.* the explanation of experience in terms of itself. The second considers Sympathetic and Æsthetic Intelligence, and contains valuable chapters on Imitation, Fellow-feeling and Individuation (with a good note on *Einfühlung* on p. 149), and Absorption in the Object. The Growth of Intelligence in its two forms, Perceptual and Conceptual, is the subject of the third part, and in the last we return to an extension of the direct explanation of experience, and to the indirect explanation or explanation in physical terms.

We note one or two small points. (i) Mr. Mitchell rounds on the materialist position thus:—

> "The capacity of the brain has to be inferred from the capacity to experience. . . . Whatever is possible to the mind is possible to the brain."

(ii) While not accepting the ordinary man's use of the term "mental faculty," and not accepting the division into faculties as though they were physical, the author has a refreshing bluntness and honesty in dealing with the term faculty itself. He has no objection to its use as properly defined, and complains that too often writers on psychology have thought that, so long as they avoided the *term* faculty, they could ask any number of indefinite questions—as to whether feelings depend on thoughts, or whether reason is the slave of passion—and could, in fact, substitute for faculties "a miscellaneous collection of experiences in every kind, of processes conscious and unconscious, and even of laws, as combining to make experience or causing it somehow." "I think it a needless penance," he adds, "to use the word 'disposition' in the sense that everyone would be willing to give to 'faculty' if he understood."

THE IMPERIAL GAZETTEER OF INDIA.

The Imperial Gazetteer of India. The Indian Empire, Vol. i., Descriptive. New edition. Pp. xxxi+568. (Oxford: The Clarendon Press, 1907.) Price 6*s.* net.

THE completion of the census in 1901 necessitated a revised issue of "The Imperial Gazetteer of India," of which two editions had already appeared, both compiled by the late Sir W. Hunter. Hunter, while in charge of the statistical department, had gained considerable knowledge of the country and its people, and in one subject, the history of the British occupation, was a competent authority. It is true that he inclined to overestimate the importance of his labours, and that he failed to give due credit to the district authorities who provided the raw material on which his compilation was based. At the same time he performed an invaluable service in popularising India for European readers. It became clear, however, that the Gazetteer was beyond the capacity of any single man, and that it was necessary to divide the subjects among a body of specialists. In the present issue, which will be nearly double the size of the last edition, little remains of Hunter's work except the final historical chapter.

W Crooke

During the quarter of a century which has passed since the last edition appeared, much has been done to extend our knowledge of the country. It is significant that in its physical aspects it is now officially assumed to include those outlying territories over which the Government has extended its control, even to the southern limits of Persia, Russia, Tibet, and China. The progress in the natural sciences is marked by Sir G. Watt's unwieldy "Economic Dictionary," Sir J. Hooker's "Flora," the "Manual of the Geology of India," the series of monographs on the fauna edited by Mr. Blanford, and a great mass of special literature. Scientific anthropology was in its infancy in Hunter's day; Dr. Grierson's linguistic survey was not even dreamed of; meteorology had not begun to gather its materials from beyond the Indian Ocean; hygiene had not yet been confronted with the problem of Oriental plague. Lastly, in the domain of religion, the translation of the sacred books had only just begun, and little attention had been given to the not less important subject of the beliefs and superstitions of the peasantry.

In the present edition of this great work these stores of new learning have been summarised and interpreted. Four introductory volumes are devoted to a series of lucid articles on the various scientific and administrative questions to which reference is made in the body of the work. The first volume contains ten articles. It opens with a chapter on the physical aspects of the country by Sir T. Holdich. The natural sciences are represented by a chapter on geology by Mr. T. Holland, one on meteorology prepared from materials supplied by Sir J. Eliot, while the veteran Sir J. D. Hooker deals with botany and Mr. W. T. Blanford with zoology. The chapter on ethnology and caste is a summary of the views expressed by Sir H. Risley in his last census report; that on language is the work of Dr. Grierson. Mr. W. Crooke is responsible for religions, Mr. E. A. Gait for sociology, and Dr. A. E. Roberts for public health and vital statistics.

The volume is thus made up out of a series of essays, each the work of an expert, and each provided with an adequate bibliography. In some cases, as that of geology, the treatment is more technical than will suit the general reader, but the review within narrow limits of space of a wide and intricate subject rendered this inevitable, and the serious student is the gainer. Many of the articles, however, are eminently readable; in particular, Sir T. Holdich, dealing with Mr. Holland's materials, has so interpreted the story of rock, mountain, and river that he has produced a fresh and graphic picture of the physical aspects of the country and of the environment of its people.

The gazetteer, which is issued in excellent form

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and at a most moderate price, should be in the hands of all who are interested in the fortunes of India. It should remain for many years the most authoritative source of information regarding our great eastern empire. The Government of India and its official editors and contributors are to be congratulated on the completion of a work of national importance.

OUR BOOK SHELF.

The Laboratory Book of Mineral Oil Testing. By James A. Hicks, with introduction by Sir Boverton Redwood. Pp. xii+76. (London: C. Griffin and Co., Ltd., 1906.) Price 2s. 6d. net.

EMPIRIC methods of testing, however simple in principle, are just those which require exact procedure in practice; otherwise two equally skilful analysts, by slight and apparently insignificant modifications, may arrive at different results. As the flash-point and viscosity methods, applied to the testing of mineral oils, depend on specially designed apparatus used under special conditions, it is essential that every chemist should work under the same conditions, and for this reason Mr. Hicks's little book will be gratefully appreciated by those who have to do with mineral oil testing. In addition to a careful description of various flash-point and viscosity apparatus and their application, the book contains an account of colour-testing and the use of sundry apparatus for estimating pressure of naphtha vapour, detection of petroleum vapour, capillarity testing, methods for estimating melting points of paraffin, wax, and scale, and for determining the calorific value of mineral oils. There is also a table (which should be unnecessary) for converting centigrade into Fahrenheit degrees, and a list of all the apparatus required for oil testing, including the name of the firm which undertakes to supply it. The book is evidently designed to meet every requirement, and its appearance under the auspices of Sir B. Redwood should be a guarantee of its practical value and utility.

J. B. C.

Theories of Chemistry. Being Lectures Delivered at the University of California in Berkeley. By Svante Arrhenius. Edited by T. Slater Price. Pp. xii+212. (London: Longmans, Green and Co., 1907.) Price 5s. 6d. net.

THE nature and aim of this work are clearly stated by the author in his preface. He writes:—"The present lectures were delivered at the University of California during the summer of 1904. I have for a long time wished to give a coherent account of the development of theories in general chemistry. This seemed to me the more desirable because the latest extensions of this science are often, both by followers and opponents, regarded as something wholly new and quite independent of the progress in the past. Many seem to hold the opinion that the new developments are the more to be admired, the less dependent they are on the older chemical theories. In my opinion, nothing could be less correct. It is just the circumstance that the new theoretical discoveries have developed organically from the old generally accepted ideas, that is to me their most promising feature."

This is a somewhat unexpected view to be held by perhaps the greatest innovator in modern chemical theory, but there is no question that it has led to the production of a most unusual and stimulating book, the perusal of which no scientific chemist can afford to neglect. A detailed enumeration of the chapters would do little to indicate their contents. The subject-matter is familiar to all chemists—it is the treatment which is of special value. The various theories and hypotheses are critically examined and exhibited in their proper relationship and subordination. The whole work bears the stamp of a mind of uncommon power applied to the matter in hand with a balance and sobriety of judgment no less rare.

Life and Flowers. By M. Maeterlinck. Translated by A. T. de Mattos. Pp. xii+312. (London: George Allen, 1907.) Price 5s. net.

THIS volume contains a collection of essays of which some have appeared in periodicals, others are published in English for the first time. They are all more or less directly concerned with life, from the phantasy on the sun-dial to the eulogy on the boxer's fist, but only the two last, on the intelligence of flowers and perfumes, are relevant to the subject of flowers. In the former of these, M. Maeterlinck describes in his perspicuous language some of the striking phenomena connected with fruit dispersal, flower pollination, and movement in plants. The accuracy of the word-painting bears witness to the author's first-hand observation of many of the phenomena, although, as he points out, except for his original experiments with the species of Salvia, the results of which are not sufficiently advanced to publish, the facts are taken from well-known sources. The attribution of arithmetical powers to the Rue and other such hyperboles may be regarded as the expression of a strong imaginative temperament. The account of the pollination in *Orchis pyramidalis* furnishes one of the best examples of the author's faculty of description.

LETTER TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE *No notice is taken of anonymous communications.*]

Unscientific Administration.

IN his letter of June 20, Mr. M. D. Hill refers to the defective education of our schools and universities, and seems to suggest that it is not the mass of the people who are to blame for England's isolated position in her national neglect for science. May I point out that in the education of our future working classes equally unscientific ideals still prevail?

The recent review of Mr. Mair's book in NATURE of June 13 (p. 147) under the title "Realistic School Mathematics" shows that there is one Government department which is striving to introduce thoroughly sound and practical, and therefore scientific, methods of teaching into this country. But the training colleges in which teachers for elementary schools are educated at the expense of the State are tied down, by examination requirements, to courses which cannot be described otherwise than as useless mechanical drudgery, with the result that the student who obtains the highest class certificate of competency to teach becomes thoroughly unfitted to appreciate or even understand such a stimulating book as "A School Course of Mathematics." The children who are taught by such a teacher will in time become the electors in whose hands lies the duty of returning a Conservative or Liberal Government to power. Unless the teachers are trained on more scientific and practical lines, there is little prospect of any Government being administered scientifically.

One further point may be mentioned. In Germany and Austria the Government confers titles of honour—Geheimrat and Hofrat—on professors who have distinguished themselves by their researches. In Great Britain it is the universities which confer honorary degrees on prominent politicians.

G. H. BRYAN.

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